NUCLEAR ENERGY INSTITUTE

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Request for Comments on the Advance Notice of Proposed Rulemaking, "Hazardous Materials Regulations; Compatibility With the Regulations of the International Atomic Energy Agency", 64 Fed. Reg. 72633 (December 28, 1999) and 65 Fed. Reg. 11028 (March 1, 2000)

The Nuclear Energy Institute (NEI)[1] on behalf of its industry members is submitting the attached comments on the Advance Notice of Proposed Rulemaking, "*Hazardous Materials Regulations; Compatibility With the Regulations of the International Atomic Energy Agency*", Docket Number RSPA-99-6283. The comments are based on industry's review of ST-1 and the ST-2 draft guidance material (February 1999), on the discussions held at the April 20, 2000 Nuclear Regulatory Commission (NRC)-U.S. Department of Transportation (DOT)-NEI public meeting on ST-1 and on industry deliberations at the May 9, 2000 meeting of the NEI Transportation Task Force. We support the efforts of the DOT to work with the international community in assuring the safe domestic and international transport of radioactive material.

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

NEI supports international efforts to develop regulations that will protect workers, the public and the environment from the adverse effects of radiation. We believe, however, that ST-1 does not provide a substantial increase in safety and that the costs for its implementation will be significant. We recognize the need for internationally-accepted standards for the transport of radioactive material, but believe that any harmonization of DOT regulations with ST-1 should be undertaken in a manner that recognizes the safe transportation practices that are now in effect, that permits the continued use of existing packages to the end of their useful design lives and that will not seriously disrupt international commerce. Transitional arrangements for ST-1 implementation are of particular concern, especially in light of the anticipated lengthy and complex approvals for new and foreign-designed and approved packages. Therefore, while NEI supports adoption of ST-1 and harmonization of 49 CFR with ST-1, we strongly recommend that such changes be implemented on a gradual basis as new packages are introduced or as the existing fleet of packages is repaired.

NEI looks forward to working with the DOT and other international and domestic agencies to develop the necessary regulations. If you have any questions concerning the attachments please contact me.

Sincerely,

Felix M. Killar, Jr.

Attachment

cc: John Cook - U.S. Nuclear Regulatory Commission
Richard Boyle – U.S. Department of Transportation
Transportation Task Force

Comments on the
Advance Notice of Proposed Rulemaking
"Hazardous Materials Regulations; Compatibility With the Regulations of the International Atomic Energy Agency",
64 Fed. Reg. 72633 (December 28, 1999) and 65 Fed. Reg. 11028 (March 1, 2000)

The following comments address the seven Areas of Regulatory Concern identified in Section II of the December 1999 Federal Register notice. Under area 7 ('*Other Changes*') NEI has identified several additional areas of concern including radiation protection program requirements, the need for thermal protection on uranium hexafluoride shipments and transitional arrangements for ST-1 adoption and implementation.

1. Scope

NEI has no comments on the new scope or change in scope of the International Atomic Energy Agency (IAEA) regulations.

2. Nuclide-Specific Thresholds

NEI recommends that the ST-1 A_1/A_2 values be adopted with one exception. The medical community currently ships ^{99}Mo generators under an exemption that increases the A_2 value from 13.5 Ci to 20 Ci for domestic shipments [49 CFR 173.435, Footnote (c)]. We request that the DOT continue to recognize the important benefits of ^{99}Mo generators to the medical community by granting a similar exemption to the ST-1 A_2 value of 0.6 TBq (or 16.2 Ci) by means of a footnote to the table of ST-1 A_1/A_2 values.

3. Communication Changes

ST-1 Section V ('*Requirements and Controls for Transport*') introduces many changes in the requirements for labeling of packages. NEI endorses expanded use of the Transport Index (TI) and the manner in which it is established in ST-1. We have no objections to introduction of the Criticality Safety Index, which closely resembles the nuclear criticality transport control index described in 10 CFR 70.59(b).

The new *Requirements and Controls for Transport* must, however, be implemented in a reasonable fashion. Packages that have been certified and are currently in use should be grandfathered from these new requirements. Application of the new ST-1 shipping names should not be required until an existing package is repaired and/or repainted.

ST-1 changes the format and information required for placarding. These new requirements need to be clarified in both the DOT regulations and in the ST-2

guidance document. For domestic (only) shipments we believe the current DOT placarding, marking and labeling regulations are adequate and should be retained.

ST-1 does not provide any exemption or provisions for small packages or packages that have rough surfaces. Painting or placing labels on such rough surfaces is difficult and the intent of the ST-1 regulations may not be met. NEI, therefore, requests inclusion of a provision in the DOT regulations and in ST-2 that allows for labels to be affixed to the package by means other than painting or use of adhesives.

4. Uranium Hexafluoride

DOT regulations need to clarify the requirements for shipping UF_6 in packages that pass the referenced pressure, drop and thermal test requirements. ST-1 requirements are not clear regarding UF_6 packages that are new, that contain a heel, or that have been cleaned/washed. DOT regulations and ST-1 should both be clarified to state that an overpack is not required in these cases.

Considerable debate has arisen over the need for thermal protection for packages used to ship depleted or natural UF_6. Until international consensus is achieved on this issue, NEI recommends that the current DOT regulations be retained for domestic shipments. The regulations for international shipments could then be revised at that time.

Transitional arrangements applicable to 48-inch cylinders require clarification. Such cylinders can apparently be used without package approvals through December 31, 2003 if they meet all applicable test requirements for UF_6 packages. DOT should clarify how regulatory compliance will be assured during this timeframe and how the grandfathering provisions of ST-1 ¶815 will be interpreted in light of the package design approval guidance provisions of ST-1 ¶805.

NEI understands that a number of minor corrections have been made to ST-1 following its release. These include, for example, elimination of test conditions for small sample containers such as P-10 containers and pinch tubes. As DOT adopts ST-1, such changes should be made regardless of the timing of corrections made to ST-1.

NEI understands that DOT and other Competent Authorities would consider H(M) and B(U) certificates for categories of UF_6 package configurations. We fully support these efforts. The industry will be working together on submittal of applications for these certificates and will encourage the DOT to issue H(M) certificates for existing 48X and 48Y cylinders.

ST-1 specifically requires conformance with ISO Standard 7195, while Title 49 requires conformance with ANS N14.1. Different editions of N14.1 now exist and ISO 7195 will likely also be updated in the future. When regulations require compliance with specific domestic or international consensus standards, an unnecessary burden is placed on the package certificate holder or registered user for verbatim compliance with that standard. This has resulted in imposition of fines for non-compliance and confusion as to which version of a standard is applicable. NEI recommends, therefore, that as DOT adopts ST-1, references to standards in the regulation be deleted. DOT should replace specific references with a phase such as "*National and/or International Industry Consensus Standards in this area would be a preferred method for meeting the intent of the regulation*." If this approach is not acceptable, the DOT should, at a minimum, clearly state that the intent of the standard must be met, but that verbatim compliance is not expected. In the case of UF_6 packages, the regulations should state that packages containing UF_6 must meet the standards that are either effective at the time of package manufacture or that are currently in force. Additionally, provisions in the standard that have been exempted from the regulations on a case-by-case basis should be noted and exempted for all users. The use by a secondary registered user of an exemption should be eliminated. When an exemption to a standard is granted, it should be noted in the regulations and be immediately available to any user of the application.

5. Low Specific Activity (LSA) materials and Surface Contaminated Objects (SCO)

The ST-1 definition of contamination, which is the same as that included in the current edition of Safety Series 6, was not previously adopted in 49 CFR 173.403. NEI recommends that DOT adopt the ST-1 definition of contamination. The regulations should clearly state that an object is not considered contaminated if radioactive substances are present on its surface in quantities less than 0.4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters or 0.04 Bq/cm^2 for all other alpha emitters. An object should not be considered radioactive and categorized as an SCO or as radioactive material if: (i) radioactive substances are present on its surface in quantities less than 0.4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters or 0.04 Bq/cm^2 for all other alpha emitters when averaged over 300 cm^2, and (ii) it has a average specific activity less than 70 Bq/g.

DOT should make clear in the regulations that for domestic shipments an SCO may serve as its own packaging, provided that it satisfies the appropriate packaging requirements for either IP-1 (for SCO-1 material) or IP-2 (for SCO-2 material) and that it is transported in an exclusive-use conveyance.

The DOT needs to clarify its expectations for quality assurance (QA) programs and record keeping that will apply to excepted packages and to similar packages that required little or no documentation prior to ST-1 adoption. Industry believes that the current QA requirements for IP-2, IP-3 and Type A packages are sufficient and should be maintained.

6. Type B and Fissile Material Package Requirements

ST-1 requirements for conducting criticality analyses for fissile materials being shipped by air require clarification. NEI believes a Guidance Note should be issued and included in ST-2 when it is published. The DOT regulations should reflect this clarification.

Industry supports DOT efforts to provide clear criteria for air shipments of fissile material. We understand that a table is being developed to explain how the characteristics of mass, enrichment, and moderation are to be used as determining factors for air shipment of fissile material.

7. Other Changes

Low Dispersible Material: ST-1 introduces this new term for solid radioactive material that has limited dispersibility and is not in powder form. NEI supports use of this term and recommends its incorporation into DOT regulations.

Radiation Protection Programs: ST-1 introduces additional requirements for radiation protection (RP) programs for carriers. ST-1 (¶301-309) requires a structured and systematic RP program that incorporates worker training, segregation of radioactive packages, development of an emergency response program and an ALARA-type commitment to minimize occupational exposures. Industry is fully committed to the importance of RP, but believes the ST-1 RP program to be confusing, limiting, and expensive for small carriers. NEI recommends that DOT not adopt the ST-1 RP provisions. Any regulatory requirement for a formal RP program should exempt small carriers that transport only the occasional radioactive material package. For example, carriers that transport packages having an annual total TI of less than 200 should be exempted from RP requirements.

DOT regulations should clearly distinguish between *transport radiation workers* and *fixed facility radiation workers*. The occupational radiation risk to a transport worker is considerably less than that posed to a fixed facility worker due to both the packaging of the radioactive materials and the limiting radiation conditions during transport. Accordingly, the level of radiation training for a transport worker need not be as comprehensive or exhaustive as that provided to a fixed facility radiation

worker. Regulations must, therefore, clearly differentiate between these two classes of workers to ensure that appropriate levels of RP training are provided to each.

Certification of Packages: DOT needs to establish as soon as possible regulatory criteria for certification of packages to "–96" standards prior to the adoption of ST-1. The industry has been aware of the coming change and is preparing certification requests on the assumption that ST-1 will be adopted. Without DOT regulations that reflect ST-1 requirements, industry will not be able to seek "-96" certificates. To avoid resubmitting requests to upgrade from a "-85" to a "-96" certification, DOT needs to complete regulation changes in this area before July 2002.

Transitional Implementation Period: DOT should provide a transition period prior to the full adoption by the U.S.A. of ST-1 in July 2002 that would provide shippers and carriers the flexibility to make shipments of radioactive materials under the current 49 CFR DOT regulations (equivalent to Safety Series 6) or under ST-1. For example, shippers could elect to use the 49 CFR 173.435 A_1/A_2 values or the equivalent values specified in ST-1 ¶401 (Table 1) so long as the shipping documentation clearly specified which values were being used.

For international shipments the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) currently propose to implement ST-1 by July 2001. The DOT must provide clear guidance for procurement of U.S. Competent Authority Certificates pursuant to 49 CFR 173.471-473 for air shipment of fissile material prior to the formal adoption of ST-1 in July 2002.

For domestic shipments, DOT should provide a one-year transition period for complete implementation of the ST-1 regulations. Larger U.S. companies that routinely transport internationally are already moving towards the requirements of ST-1, but smaller companies that only ship domestically have had neither the time nor resources to begin converting to ST-1. Such smaller companies will need time after the ST-1 effective date to, for example, incorporate ST-1 requirements into company procedures, train workers, design, test and obtain approval for new packages designed to ST-1 requirements, implement name and shipping documentation and determine the consistency of existing package fleets with ST-1 requirements. Therefore, a one-year transition period for domestic shipments is needed.

In the absence of any approved Type C packages, considerable uncertainty exists over the ability to continue to transport some fissile materials by air using existing packages. Near-term resolution of this potential obstruction to international commerce is required.

Package Grandfathering: ST-1 provides transitional arrangements (¶815-818) for the continued use of many existing packages and for the phasing out of the manufacture of packages approved against requirements from prior versions of Safety Series 6. These transitional arrangements are important to allow for the development, testing and approval of new package designs and for continued use of existing packages until the end of their useful design lives. Regulations need to be clear on how DOT will address this issue and whether DOT will continue to revalidate certificates for packages following expiration of their manufacturing phase out period.

H(M) Package Certification: In adopting ST-1, DOT regulations need to be clear on the requirements for obtaining an H(M) certificate and the time period for which the certificate will be valid.